1/7

Fig 1

200

Fixed fields | offsets | variable-sized fields

F_1 | F_2 | $\cdots$ | F_k | O_1 | O_2 | $\cdots$ | O_ℓ | F_{k+1} | F_{k+2} | $\cdots$ | $F_{k+\ell}$

Fig. 2   Mixed format record layout

(m₁) 302 dictionary of common values for field F_{k+1}

delimiter

301

3

F_1 | F_2 | ... | F_k | O_1 | O_2 | ... | O_p | F_{k+2} | ... | F_{n+q}

This offset slot is used as a dictionary index/pointer

F_{k+1} is not stored in this record

Fig 3. Variant use of offset slots.

(m_2) a larger dictionary of common values.

402

$F_1 F_2 \ldots F_k \mid O_1 \mid O_2 \mid \ldots \mid O_j \mid F_{k+1} \mid F_{k+2} \mid \ldots \mid F_{k+l}$

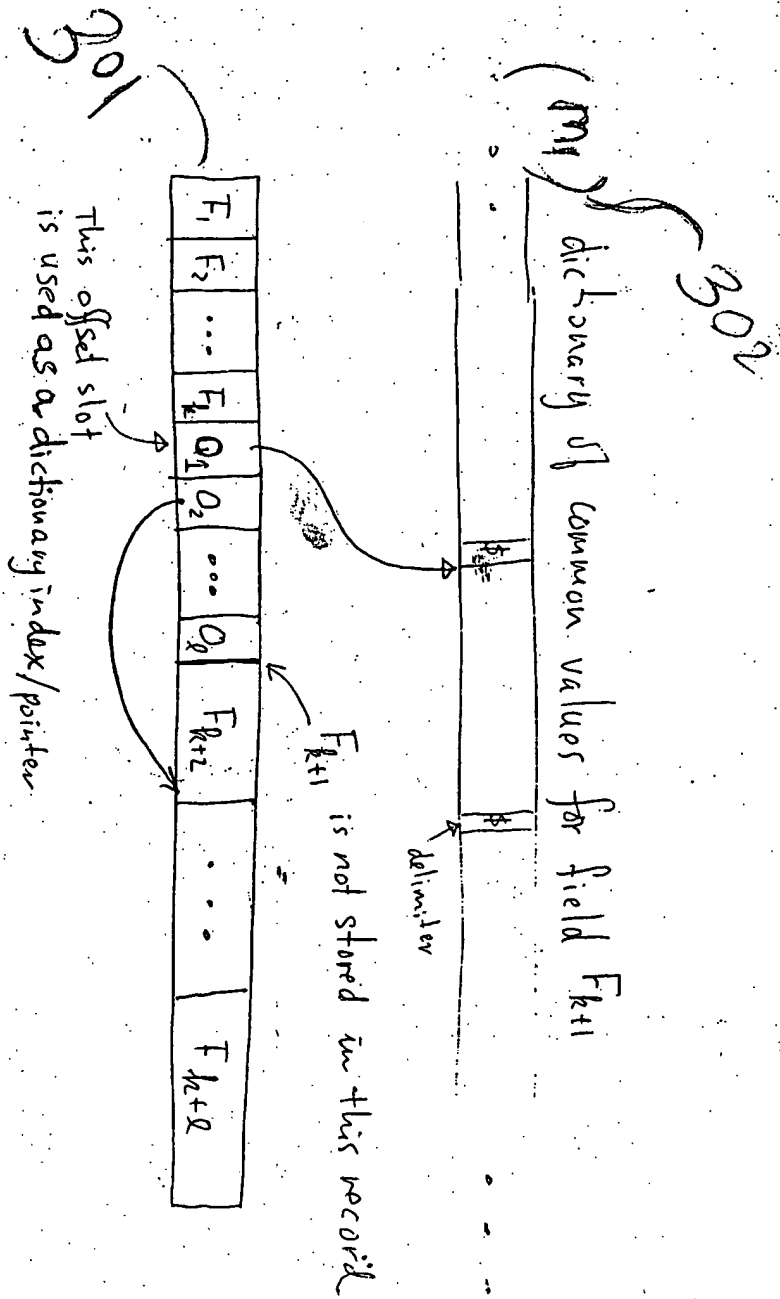— This field value is used as a pointer into a dictionary when O_1 is not large enough for that.
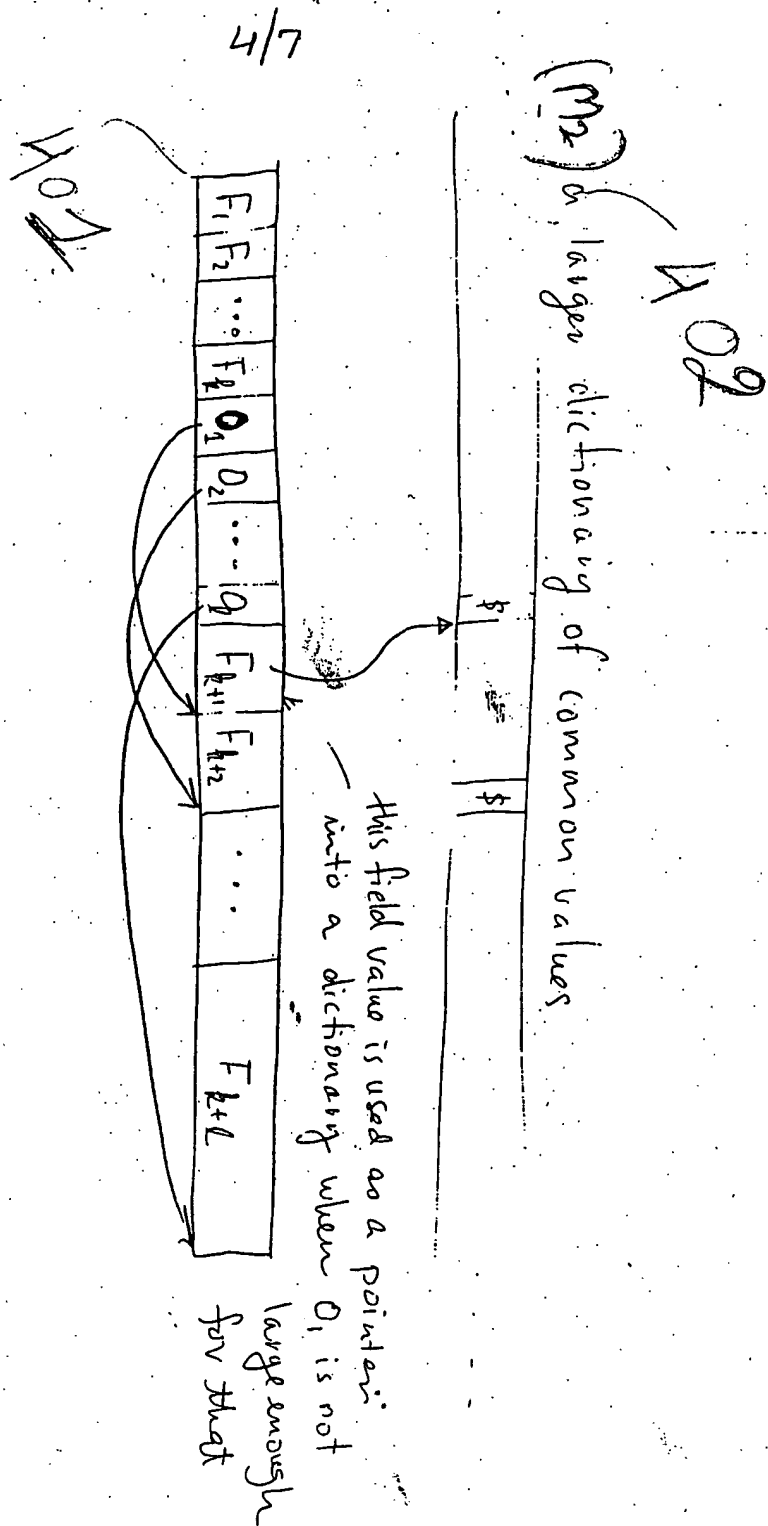
401

Fig. 4 Variant use of field values for larger dictionaries.

An exceptionally large value F_i' for F_i is stored as an extra variable-sized field F_i'; the fixed slot for it, is used to stored the offset pointer to terminate F_i.
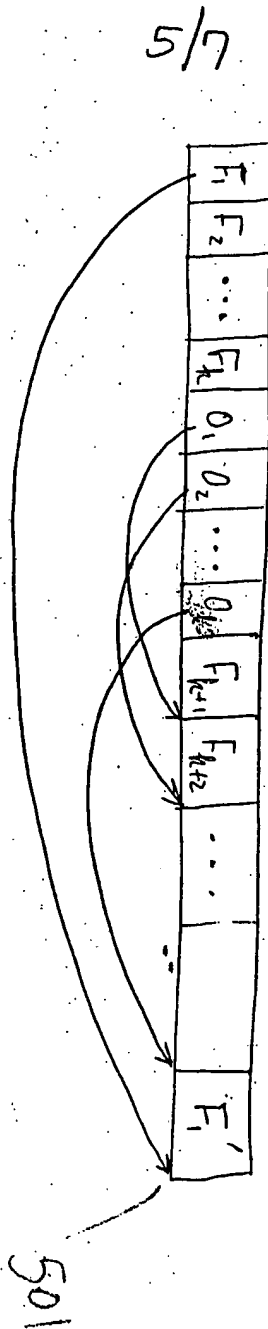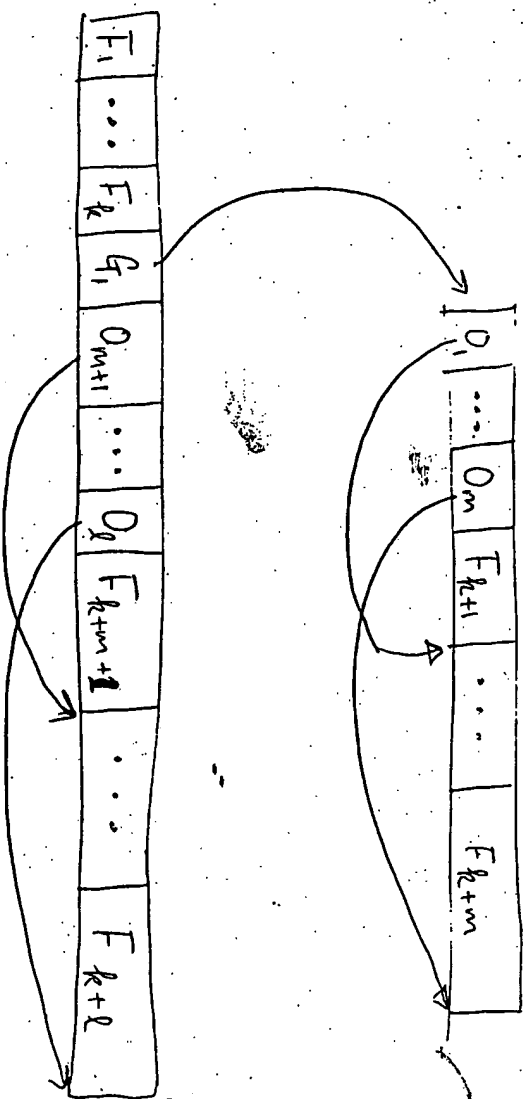
| F_1 | F_2 | $\cdots$ | F_k | O_1 | O_2 | $\cdots$ | O_{i-1} | F_{k+1} | F_{k+2} | $\cdots$ | | | F_i' |

501

Fig. 5   Exception (overflow) for fix-sized fields.

Fig. 6

Compressing a group of fields

In a dictionary of common tuples, layout for the group of fields $F_{k+1}, \ldots, F_{k+m}$

601

602

Compressed Data

Go to the Fixed field   701

Check to see if the fixed field contains a value   702

Yes → Retrieve the value   703

No

Check to see if the fixed field contains a dictionary pointer   704

Yes → Retrieve the value of dictionary pointer   705

No

Check to see if the fixed field contains a field offset   706

Yes → Check to see if the value starting from field offset is a pointer to another dictionary   707

Yes → (to 705)

No → Return the value starting from the field offset   708

No

Check to see if the fixed field contains a record offset   709

Yes → Retrieve the same field from that record   710

No

Fig. 7